

of this future progress. The fields opened up by the microscope—whether in zoology, botany, histology, pathology, medicine, bacteriology and sanitation; or in the hundreds of more specialized industrial aspects of food examination, textiles, agriculture, chemistry, mineralogy, and the like—will be greatly enlarged during the next quarter of a century.

The Secretary feels that our Society has some very definite advantages to offer to the younger generation of students who must use the microscope. Our scope is much more catholic and general than that of most societies, and is yet quite specific and technical enough to serve the specialist. Our publications ought to be peculiarly valuable to those who do not have access to large lists of special journals.

He desires, therefore, to ask very earnestly that all members, beside keeping alive their own membership, aid him in the following ways:—

1) Send to the Secretary the names of any persons likely to be attracted by our program. These may well be of your present advanced students, recent students who have gone out into teaching or other work of a scientific kind, colleagues, acquaintances among progressive high school or college teachers, and isolated workers with the microscope.

2) Send in, suitably illustrated for publication, the best discoveries you are making of methods of work, of technical appliances, or of making truth clear to others. We aspire to become one of the best channels in the country for the presentation of such technical notes, in our Department of "*Notes and Reviews.*"

In a "mutual" association like this, where there is no endowment, there is at once the necessity and the privilege of complete and hearty coöperation. As he enters the tenth year of service to the Society, the Secretary feels more than ever that this may be made the most prosperous period in the whole history of the Society.

#### CRYSTALS IN AMEBAS

Schaeffer reports (Baltimore meeting Am. Soc. of Zoologists, 1918) that crystals, reasonably distinctive in shape and size, characterize different species of amebas. These crystals are within vacuoles and

are thus not in direct contact with the endoplasm in which they occur. The author believes them excretory, altho their composition has not been determined. Their presence seems to be correlated with the physiological states leading to division. Actively dividing amebas have few crystals. Those that are not dividing become so loaded up with crystals as to produce opaqueness and to impede locomotion. It has not been possible to determine whether the crystals, once formed, are ever resorbed again.

#### MONTANA TREMATODES

Faust (Ill. Biol. Monog. Vol. IV, No. I, July 1917) reports on the larval trematodes found infesting the snails of Bitter Root Valley, Montana. Fourteen new species are described from this biologically isolated fauna. Two of these are monostomes, two are holostomes, and ten are distomes. This is a large number of species for so limited a territory. The percentage of infection of the snails is very high.

The author has studied only the cercariæ and the parthenogenetic stages whereby these larvae are produced, the mature worms not being known in any of the species. The principal results of the study are summarized as follows:

1. The history of the germ cells in sporocysts and rediæ shows that they are true parthenogenetic ova, with one polar body and no reduction of chromosomes.
2. Consequently the parthenitæ (sporocysts and rediæ) are not "larval" in any real sense; but we have an alternation of parthenogenetic generations with hermaphrodite generations.
3. The manner of forming the egg cells, the origin of the layers, etc. give evidence that the parthenitæ, cercariæ, and miracidia are homologous, tho distinct, life histories.
4. The trematode integument is mesodermal in origin.
5. The fundamental systems (e.g. excretory, genital, and nervous systems) of the adult are manifest in the cercaria and may be used to show relationships.
6. Holostomes are probably of distome origin, and have, in common with the other families, the alternation of hermaphrodite and parthenogenetic generations.